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ABSTRACT

Following their first year of advanced study, two samples of students were polled. Study one analyzed the attitudes of 4,248 studnets toward the admission test they had taken: Graduate Record Examinations (GRE), Law School Admission Test (LSAT), Medical College Admission Test (MCAT), Admission Test for Graduate Study in Business, or the Miller Analogies Test. The relation of these attitudes to field of study was also examined. Data from a second national sample were analyzed by ethnic group--there were 2,036 whites, 87 orientals, an 128 blacks. Overall, blacks were clearly the most critical--96% believed the tests were oriented toward white middle-class culture. Surprisingly, attitudes toward tests were unrelated to graduate or undergraduate grades. Nearly all comments from both studies were critical. Students disputed test content (how well the test represented their educational experience), validity (its relation to the real field of work) and coverage (its ability to measure success factors such as creativity, academic motivation, and interpersonal skills). Finally, students were concerned that the tests and the testing organizations have too much power. In conclusion, the role of admissions test as only one factor in predicting academic success should be emphasized; nevertheless, these criticisms should stimulate research into the meaning of professional competence. (CP)

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A SERIES OF SPECIAL REPORTS OF THE NATIONAL COUNCIL ON MEASUREMENT IN EDUCATION

What Graduate and Professional School Students Think About Admissions Tests[1]

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

Leonard L. Baird
Senior Research Psychologist
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ABOUT THIS REPORT

Leonard L. Baird

The problems associated with higher education have only recently come into focus as they relate to the measurement community. The issue of admissions criteria for colleges, graduate schools, and professional schools has generated heated debate with, as yet, little in the way of resolution with regard to the efficacy or utility of such criteria. Particularly when attention is focused upon the admissions test do both the amount of data and quantity of opinions proliferate. Much of the data has focused attention upon the validity of such instruments for the institutions of higher education as predictors of success for prospective enrollees. Little, if any, attention has been paid to the attitudes and opinions of the students who are required to take these examinations.

In this report, Dr. Leonard L. Baird presents the opinions of graduate and professional school enrollees' opinions regarding admissions tests while incorporating some practical suggestions for future test constructors to consider as they construct new instruments.

Much of Dr. Baird's professional life has been dedicated to the explication of measurement issues as they relate to higher education. His activities have included many articles and presentations concerning this topic. He is currently a Senior Research Psychologist with Educational Testing Service, Princeton, NJ. 08540.

Testing has been the subject of controversy for many years, particularly testing for admissions to educational institutions. Strong opinions have been offered concerning tests' appropriateness, accuracy, validity, and social functions. Unfortunately, the recent controversy between pro-testing and anti-testing groups has generated much more heat than light. It is easy to understand how the discussion could become intense and polemical, because many people believe that admission tests are determinants of students' educational progress throughout their careers in higher education. They think that tests play the dominant role in determining the students' admission to college, the college they may attend, admission to graduate or professional school, and the quality of the schools the students may attend.

Considering the controversy concerning tests and their assumed importance, it is striking that there is so little information about what the students who are required to take the tests think of them. The Russell Sage studies (Brim, et al., 1969; Goslin, 1963, 1967) provided some information about people's general opinions about tests, including the facts that the majority of secondary school students did not believe it fair to use intelligence tests to decide upon eligibility for certain colleges, and that the majority of those who had taken college entrance tests felt nervous, lacked confidence, and did not enjoy the experience. Using another approach, Fiske (1967) examined the reactions of a national sample of adults to six simulated tests. The majority of respondents felt comfortable with a simulated intelligence test. However, when they

[1] This study on which this report was based was sponsored by the Association of American Medical Colleges, the Graduate Record Examinations Board, and the Law School Admissions Council.

TM007 181

were asked about their reactions to the last "real" test they had actually taken, the majority of those who remembered a test for admission to school or college said they felt anxious and tense. Tesser and Leidy (1968) polled a large sample of high school students for their opinions of tests. The majority felt that tests were equally fair to all racial groups and that it was fair that colleges base admission on standardized test scores. However, the students felt that colleges should place less emphasis on tests and place more emphasis on references and interviews.

Although these studies have provided some useful information, none has explored the detailed reactions and views of students who are required to take tests for admission to educational institutions. In this study, we examined students' views of the tests they must take for admission to graduate departments, law schools, medical schools, business schools, and other professional schools. The reactions of students to these tests are especially relevant to the controversy concerning tests in two ways: first, the tests **do** play a large role in admission to some fields; second, the students who take these tests are well educated, academically oriented, and have given thoughful consideration to the issues involved.

We therefore sought information about graduate and professional school students' feelings about the admissions tests they had taken by polling two samples of students who were at the end of their first year of advanced study. The relation of these attitudes to field of study, academic success, and ethnic group status was also examined.

Study One

The data for this study comes from a follow-up of a survey of a national sample of college seniors who replied in the spring of 1971 to a questionnaire, The College Senior Survey (Baird, 1974). Some 7,734 former seniors who had attended 94 colleges across the country responded, in late spring of 1972, to a follow-up questionnaire designed to determine their activities a year after college. (This represented approximately 70% of those sent a questionnaire.) Analyses indicated that the sample included proportionately fewer minority students than did the nonrespondents, but the sample did not seem to be biased in any other way, and included an extremely wide variety of students. The Senior Survey included a great deal of biographical, attitudinal and educational information about students. Reports of the Graduate Record Examinations (GRE), Law School Admissions Test (LSAT), and Medical College Admissions Test (MCAT) scores of students who had taken those tests were also obtained. The follow-up questionnaire ascertained students' educational and vocational activities. Due to the questionnaire design, only the 4,248 students currently attending graduate or professional school were asked their opinions about the tests.

Overall, the results of the analysis of the follow-up sample shown in Table 1 indicated that only 45% of the test takers felt that the graduate or professional admission test they had taken had accurately assessed their abilities, although 57% felt the tests assessed abilities that are relevant to success in the field, and 64% felt the tests to be fairly comprehensive in their coverage. They did not feel that the tests were inferior to written essay type exams (only 39 percent felt essay tests were better). They felt that the test was primarily an obstacle to admissions rather than a help to the candidate (55 percent).

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Table
Tests Graduate and Professional School Students Have Taken and Their Attitudes Toward Them[1]

	Group								
	Grad. Arts Humanities	Grad. Biol. Science	Grad. Physical Science, Eng.	Grad. Social Science	School of Education	Law School	Medical School	Other Professional	Total
Test Taken for Admission									
GRE	61	70	64	79	50	2	4	33	41
LSAT	<1	0	0	<1	0	95	0	<1	12
MCAT	0	6	0	0	<1	<1	94	1	12
ATGSB	0	0	<1	<1	<1	1	0	29	8
Miller's Analogy	4	1	<1	4	11	0	<1	2	3
None of the above	33	22	34	15	37	1	2	33	24
Attitudes Toward Tests[2]									
Tests abilities that are relevant to success in the field	52	57	63	54	40	74	58	52	57
Content is oriented toward white, middle-class culture	59	44	48	75	72	63	61	60	61
Content is biased against blacks and other minorities	39	29	26	60	47	44	43	40	41
Was fairly comprehensive in its coverage	56	75	69	58	61	69	64	66	64
Accurately assessed my abilities	35	48	52	39	35	58	49	48	45
Is primarily an obstacle to admission rather than a help to the candidate	48	51	48	63	66	60	53	55	55
Didn't allow enough time to adequately test one's capability	45	36	46	58	53	51	41	49	49
Is not as good a test as a written essay-type exam	50	49	26	48	50	40	32	40	39
Made me nervous while I was taking it	39	51	42	57	56	58	50	49	50
N of base group	274	158	606	360	442	461	435	1512	4248

1. Scores are reported in percentages.
2. "Agree" figures are calculated on the basis of the number of students who had taken an admissions tests.

Perhaps partly because of these attitudes, half of the students tended to feel the test made them nervous while they were taking it (50 percent). About half (49 percent) felt the tests had not provided enough time to adequately assess their capabilities. Finally, 61 percent felt that the content of the tests was oriented toward the white, middle-class culture while 41 percent felt it was biased against blacks and other minorities.

When the results were analyzed by fields, they revealed some large differences. For example, only 35 percent of the arts and humanities students who had taken the GRE felt that the test accurately assessed their abilities in contrast to 58 percent of the law students who took the LSAT. Social science students and law students often reported feeling nervous while taking the test (57 and 58 percent respectively); arts and humanities students (39 percent) and physical science and engineering students (42 percent) were nervous less often. The physical science students were the least likely to feel that the GRE was biased against blacks (26 percent); social science students were the most likely to believe the GRE was biased (60 percent).

Study Two

The data from a second national sample of graduate and professional school students was analyzed by the ethnic group in which the students

placed thenselves: black, oriental, and white.[2] Overall, blacks were clearly the most critical of the tests and orientals were the most favorable. (There were 2,036 whites, 87 orientals, and 128 blacks in this sample.) The largest differences were on four items, two of which dealt with bias. The four items, followed by the percentages of blacks, orientals, and whites, respectively, who agreed with the item were as follows: "Content is oriented toward white, middle-class culture" (96, 58, 67);"Content is biased against blacks and other minorities" (87, 41, 50); "Accurately assessed my abilities" (24, 56, 51); and "Is primarily an obstacle to admission rather than a help to the candidate" (80, 48, 55). Perhaps the best way to summarize these results is that the oriental students were the least negative toward the tests, the blacks considered the tests as biased obstacles to admission and the whites were in the middle, although many of them were critical of the tests.

Contrary to what many people would expect, attitudes toward tests were virtually unrelated to students' undergraduate or graduate grades. They were also generally unrelated to students' admissions test scores (no correlation between any test and opinion about tests was as high as .15). Students' opinions about tests were also generally unrelated to their opinions about other areas of graduate or professional school.

The results I have reported so far suggest that students hold divided opinions about tests. Evidence for the importance of the role of testing in students' thinking lies in the fact that no other questions in the surveys elicited as much student comment as the questions on attitudes towards tests. (The survey covered almost all aspects of graduate and professional education – surely enough to comment on.) The comments were nearly all critical, to one degree or another. At best, the tests were seen as a necessary evil; at worst, tests were seen as the direct cause of all personal and social problems. The following comments illustrate the main themes. Many students were simply negative, in a humorous way.

> I do not believe the LSAT is a valid testing instrument to determine ability to comprehend the study of law. In my own instance I received a 464 on the LSAT but at the present I rank 2nd of 140 in my class! I rest my case!

Other students were humorless.

> The GRE is a pile of_____!

> The MCAT was the stupidest standardized test I've ever seen, except, **perhaps** the science section. The math was villainous, easier than SAT's. The $20 fee was **ABSOLUTELY OUTRAGEOUS FOR THIS PIECE OF GARBAGE.**

Most criticism was much milder and well considered. Some of the most thoughtful criticism concerned the content and coverage of the test, two areas in which the testing organizations place a great deal of effort.

> Re the GRE: The test provides a fairly accurate assessment of some abilities relevant to success in graduate study, viz. reading speed and comprehension, some vocabulary, simple algebraic manipulations, interpretation of graphs and charts. However, (1) since I have found that the quantity of material which must be studied in most graduate courses is not great, I feel that both sections of the exam are too speeded. (Of course, portions of the math section in particular are so simple that they must be speeded in order to produce much variation in the scores.) And (2) the math section is not comprehensive in coverage. Nothing is required in the way of the production, or at least the understanding, of mathematical or logical proofs. The production or understanding of logical sequences of thought is usually necessary in the writing or reading of research papers.

In response to these points, it should be pointed out that the quantitative section of the GRE Aptitude test is designed to assess the **general** quantitative skills and level of mathematical understanding among students representing a wide range of ability. Needless to say, most students do not find the test at all simple. The kinds of questions suggested by the student just quoted are asked on the Mathematics Advanced test, which is designed to assess the achievement of students concentrating in mathematics.

* * *

> I do not believe the MCAT is accurate as a gauge for skills necessary to complete medical school. This belief is based on the fact that the MCAT tests specific facts. I cannct believe that the specific facts which it tests for are necessary for success as a physician.
>
> . . .it should be noted that lumping three sciences together in one test does not serve the purpose of testing a science major about his particular field: a student with a major in chemistry has not necessarily had much biology at all. Hence a single test which

[2]In addition to the sample just described, an additional sample of first year graduate and professional school students was obtained in selected fields. This sample was to be used to allow certain analyses in the fields of Law, Medicine, Chemistry, Biology, English, History, Economics, and Psychology. Some 2474 students from 105 departments and schools completed the same survey used in the follow-up of the senior sample.

includes a mish-mash of biology and chemistry cannot adequately determine the chemistry major's ability to learn the chemistry material which was presented to him in his undergraduate courses.

The idea behind the MCAT is that it assess broad understanding of the areas of knowledge needed in medical school. The MCAT attempts to use the testing time available to assess a variety of fundamental skills rather than achievement in specific subject areas. (More on the coverage of the test will follow.)

* * *

In addition to comments about the inadequacies students felt they saw in academic areas covered by the tests, many students commented about the important abilities the tests did not cover. The most commonly mentioned unassessed ability was creativity.

> I feel **emphatically**, that aside from the absurdity of having to pay for taking such a test, it tests one and only one type of intellectual ability: the "obsessive compulsive" and overly intellectualism and cerebral ability. [sic] This test does not in any way account for a person's level of creativity and imagination; rather by virtue of the type of intellectual skills it calls into play, it discriminates against the above mentioned skills. Your test is an outgrowth of white, middle-class society and I am hopeful that the current policy that many universities have in disregarding a person's scores or even better not requiring them for admission, will continue in a much more massive, widespread and dramatic way.

There is no evidence that the aptitude tests necessarily discriminate against the creative person. They are merely testing something different. Of course, the fact that good measures of creative ability are lacking means that graduate admissions committees have no tools to assess creativity among applicants. Consequently, admissions decisions are made largely on the basis of academic ability alone.

* * *

Another frequently mentioned "missing ability" was academic motivation.

> Although entrance tests for graduate school may give a reasonable assessment of a student's ability range, they do not attempt to ellicit any information regarding the prospective student's mental attitude towards graduate study. Although I don't know how to incorporate a reliable measurement of motivation into entrance exams, I do feel that student motivation is a prime importance in successfully pursuing a course of graduate study.

Another frequently mentioned quality was skill in interpersonal relations.

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> Too much emphasis is placed on the standard law school exam. This exam is generally the only determination and measure of one's ability in law school. The standard exam doesn't measure such essential legal skills as oral ability, negotiation skills, how one works when not under the pressure of a time limit, and abilities to work with people.

The testing programs recognize the fact that their tests do not, and probably cannot, measure motivation, interpersonal skill, creativity, and many other qualities which are necessary for success. As the testing programs point out in their brochures, the tests' purposes are limited to assessing academic potential, and one should not read more into the tests than they can really offer. Unfortunately many students and admissions committee members do not read these brochures, and many read too much into the test scores.

* * *

Finally, many students expressed their concern that tests, testing, and testing organizations have much too much power in our society.

> We are living in a test society. I think it is unfortunate that we must rely so heavily on tests. It would be a pleasant change to be admitted into something, besides prison, without first having to take an 8 hour test that bores you, fatigues you, and really doesn't test anything but your endurance. My real feelings on the LSAT are that it measures speed rather than competence or ability. . . . I detest any educational admissions system which, in attempting to measure potential, actually thwarts and inhibits achievement by stifling ambition and opportunities on the basis of a four or eight hour test. The perceptive test-taker may or may not be the best lawyer, but he will soon be the only type of individual admitted to law schools.
>
> My point is that a process whereby students are culled before they have had a chance to prove themselves cannot satisfactorily serve the needs or goals of education in a democratic society. The reason is that an aristocracy of test-takers does not approximate an aristocracy of merit or ability, and so long as standardized tests play a decisive role in admissions policies, equal educational opportunity for all will remain a myth. Of course, even the most democratic of systems could not avoid frustrated ambitions, but it would not set artificial barriers such as minimum LSAT scores in the path of individual achievement.

In an ideal world, every person would be able to "try out" for every position in society. Thus, every student interested in medicine could attend medical school until flunking out. Everyone who believes he or she has the talent for a Ph.D. could stay in graduate school until they were asked to leave. Clearly, this arrangement would be extraordinarily costly and, in a real sense, unfair to many people who would waste years of their time before learning they did not have the capability to enter the profession they hoped to pursue.

* * *

Many other students seemed to dispute the coverage of the tests; e.g., students objected to what they felt was the undue emphasis on Freudian theory or statistics in the GRE psychology examination, or the emphasis on the Civil War in the GRE-History test, or the emphasis on chemistry in the MCAT. The specific educational experiences of these students did not match the specific questions included in these tests. It is important to realize that each test is constructed to provide comprehensive assessment. For example, each GRE Advanced Test is put together with the active advice of committees of faculty members from the disciplines. These faculty represent a wide variety of institutions and specialties. They work out the general categories of knowledge and skill which are important in their discipline, then agree on the relative weight – and the number of questions – which should be placed on each category in the examination. This helps to insure that the content of the examination reflects what is currently being taught in **most** institutions and what is considered **most** essential in each field. To further help keep the tests up-to-date with the fields, new members are periodically added to the committees, and old members rotated off.

The committee members determine the content and scope of the test and write the test questions. All questions proposed for the test are reviewed and revised as necessary, and the entire test is then reviewed and approved by the committees. Professional subject-matter and measurement specialists provide information and advice about methods of test construction and assist in the preparation of questions and tests. However, their chief role is to coordinate the work of the committees. Thus, although the tests cannot cover every aspect of each field, they are designed to cover the most important aspects of the fields with as much educational and psychometric skill as possible.

It seems apparent that students have serious doubts about the validity and functions of tests for admission to advanced study. Although the students quoted are a minority of the test takers, they illustrate the fact that many able, well educated people are skeptical about the tests on many grounds. They doubt the representativeness of tests' content. Many students question the tests' validity

or relation to the real work of the field. Many do not believe they are necessary. The students did not seem to appreciate – or even acknowledge – the pains that have been taken to make their tests fair, valid, and helpful.

It is important to remember that the students in this sample were successful in entering graduate or professional school. The tests had not been barriers to them, yet they still were quite critical of the tests. It seems plausible to think that their criticisms are only the tip of an iceberg of criticism which could be found among college and high school students. A sample of students who had taken the tests but had not entered advanced study would probably be even more critical of the tests.

Perhaps test constructors should provide better explanations of the construction and use of their tests. Perhaps admissions committees could give students their rationales for requiring the tests. It is possible that students might feel less critical toward the tests if these things were done. However, many students may still have the feeling, based on their own experiences, that admissions tests are measuring something that is only one of the many factors in success in their field, and a rather small factor at that. Their feelings are consistent with a mass of evidence that indicates that academic ability has little relation to high level accomplishment and creativity (e.g., Hoyt, 1965; Baird, 1976). A certain level of academic ability may be a necessary but by no means sufficient condition for success in advanced education and the careers to which it leads. (Although the testing programs have never denied that the characteristics they assess are only one element in professional success, this caveat has often been ignored by students and by many admissions committees.)

However, the role of tests in predicting the criteria of strictly academic preparation for professional roles needs to be explained frankly and thoroughly. Generally, they are not the most important factors in admission to advanced education; they are not nearly as important as the patterns of undergraduate grades (Burns, 1970). Perhaps most important of all, they do not determine the course of individual's lives; they are just one of many considerations used by **some** schools, in **some** fields to assess **some** of the characteristics of their applicants. Although the applicant must find a different school or a different field which will offer admission, there are still many options open, and the determined individual often will be able to pursue a successful career.

On the other hand, the criticisms from these well educated students – who will be, although it is a hackneyed point, the leaders of tomorrow – should stimulate testers and test-constructors to examine their basic assumptions, and to reconsider the emphases of their testing procedures. Surely the testing profession could give more attention to methods for assessing the variety of motivations of people entering higher education, the level of potential indicated by real-life accomplishments, and the assessment of the talents and skills which are really needed for competent performance in a variety of professional capacities. To their credit, the testing programs of the Graduate Record Examinations and the Law School Admissions Council are engaged in a wide variety of research to assess, among other qualities, creative scientific thinking, biographical antecedents of performance in advanced study, cognitive style, and, most important, the definition of the meaning of professional competence and the relationship between their tests and professional attainment (Carlson, 1976; Clark and Centra, 1976; Frederiksen, Ward & Kiefer, 1975; Hilton & Schrader, 1976; Witkin & Cox, 1975). I would hold that research in these areas will add much more to our ability to assess the capacity of individuals than any further refinements of current tests of academic aptitutde and achievement.

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You may recall that last year there was a special issue of J.E.M. devoted to Test Bias. Within one month of publication we sold out all available issues even though we increased our printing order. In the meantime, hundreds of persons have written asking us for copies of this issue, which unfortunately, we had to turn down. This disappointed many! But we can alleviate this disappointment if we receive sufficient demand by reprinting this issue. And, we'll be able to offer it at the regular rate of $4.00!

Sometime in June, JEM will come out with **another** special issue devoted to **latent trait models** and their applicability to educational measurement. This issue differs from typical articles on such models in that it is not highly symbolic, theoretical, and obfuscate. The major concepts are explained clearly, and numerous practical examples are presented. This issue is a **must** for all advanced measurement theory and research design courses. At the special pre-publication price, it is within the economic reach of students in these courses. The issue contains the following papers: **Latent Trait Models and Their Use in the Analysis of Educational Test Data** (Hambleton and Cook), **Solving Measurement Problems with the Rasch Model** (Wright), **Practical Applications of Item Characteristic Curve Theory** (Lord), **Item Characteristic Curve Solutions to Three Intractable Testing Problems** (Marco), **The National Reference Scale for Reading: An Application of the Rasch Model** (Rentz and Bashaw), and **Tailored Testing: A Successful Application of Latent Trait Theory** (Urry).

Are you buying a "pig in a poke?" We don't think so! Although the latent trait models issue is twice as large as the regular issue, we can offer it at a special price PROVIDED we have sufficient pre-publication orders. IF WE HAVE TO REPRINT THE ISSUE, THE COST WILL BE AT LEAST $7.00 FOR A SINGLE ISSUE! DON'T BE DISAPPOINTED! GUARANTEE YOURSELF AN EXTRA COPY AND YOUR STUDENTS A VALUABLE AND UP-TO-DATE PRACTICAL CONSIDERATION OF LATENT TRAIT THEORY AT A REALISTIC PRICE! HOW? BY ORDERING IN ADVANCE!

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